

## STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763

N00004718 Lab ID: Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

**Billing Code:** 

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004718001

**Project Name:** 

**Sample Description:** 

KINGSTON WTP

**Sampler Project Name:** 

**Project Site No.:** 

**RAW** 

**Station No.:** 

**Date/Time Collected:** 

06/29/2009 10:25 **BRANDY LONG** 

Sampler's Name: County:

**ROANE - 73** 

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency:

TDEC-DWS

**Billing Code:** Send Report To: 327.39-12 **TDEC-DWS** TDEC-DWS

Agency Invoiced: **Priority Date:** 

Date/Time Received: 06/29/2009

12:25

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity:

Temperature:

**Dissolved Oxygen:** 

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	66	mg/L	3.8	10	M Chen	6/30/2009

TEST: Hardness, Calcium	ME	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	60	mg/L	0.7	1	M Chen	6/30/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

N00004718002

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name:

**Project Site No.:** 

**FINISH** 

**Station No.:** 

**Date/Time Collected:** 

06/29/2009 10:30

Sampler's Name:

BRANDY LONG

County: Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency:

TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

06/29/2009

12:25

Received By:

P D Wilson

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	62	mg/L	3.8	10	M Chen	6/30/2009	

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

**CFS** 

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: Hardness, Calcium	ST: Hardness, Calcium METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	60	mg/L	0.7	1	M Chen	6/30/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

N00004718003

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name:

**Project Site No.:** 

**FINISH** 

**Station No.:** Sampler's Name:

**Date/Time Collected:** 

06/29/2009 10:40 **BRANDY LONG** 

County:

**ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville **TDEC-DWS** 327.39-12

Billing Code: Send Report To:

TDEC-DWS TDEC-DWS

Agency Invoiced: **Priority Date:** 

Date/Time Received:

06/29/2009 12:25

Received By:

P D Wilson

**Field Determinations** 

:Hq

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY: DA					DATE	
Total Alkalinity	65	mg/L	3.8	10	M Chen	6/30/2009	

TEST: Hardness, Calcium METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	60	mg/L	0.7	1	M Chen	6/30/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 

N00004718004

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name:

**Project Site No.:** 

**RAW** 

Station No.:

Date/Time Collected:

06/29/2009 10:45

Sampler's Name:

**BRANDY LONG** 

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

**Billing Code:** Send Report To: 327.39-12 **TDEC-DWS** 

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

06/29/2009

12:25

Received By:

P D Wilson

**CFS** 

**Field Determinations** 

Chlorine, residual:

**Dissolved Oxygen:** 

Conductivity:

Temperature:

:Hq

Other:

Flow:

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	73	mg/L	3.8	10	M Chen	6/30/2009

TEST: Hardness, Calcium	MET	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	60	mg/L	0.7	1	M Chen	6/30/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 



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TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

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**TDEC-DWS** 200 East Race St Knoxville, TN 37763 Lab ID: N00004718 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Apalytical Supervisor

N00004718001

**Project Name:** 

Sample Description:

KINGSTON WTP

**Sampler Project Name:** 

**Project Site No.:** 

RAW

Station No.:

Date/Time Collected:

06/29/2009 10:25 BRANDY LONG

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville

Billing Code: Send Report To: TDEC-DWS 327.39-12 TDEC-DWS

Send Report To: Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

06/29/2009 12:25

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	06/30/2009				A Wilson	6/30/2009	

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	A Wilson	6/30/2009
Barium	24	μg/L	2.5	5	A Wilson	6/30/2009
Beryllium	U .	μg/L	0.11	1	A Wilson	6/30/2009
Cadmium	U	μg/L	0.41	1	A Wilson	6/30/2009
Chromium	U	μg/L	2.0	5	A Wilson	6/30/2009
Cobalt	0.29J	μg/L	0.04	1	A Wilson	6/30/2009
Lead	0.31J	μg/L	0.10	1	A Wilson	6/30/2009
Manganese	28	μg/L	0.42	1	A Wilson	6/30/2009
Selenium	1.3J	μg/L	1.3	5	A Wilson	6/30/2009
Thallium	0.77J	μg/L .	0.03	1	A Wilson	6/30/2009
Vanadium	6.0	μg/L	3.4	5	A Wilson	7/1/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	0.05J	μg/L	0.029	0.2	A Bass	6/30/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

MQL - Method Quantitation Limit

N00004718002

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name:

**Project Site No.:** 

**FINISH** 

Station No.:

**Date/Time Collected:** 

06/29/2009 10:30 **BRANDY LONG** 

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:** 

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: TDEC-DWS

**Priority Date:** 

TDEC-DWS

Date/Time Received:

06/29/2009

12:25

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	06/30/2009				A Wilson	6/30/2009	

TEST: ICP-MS	ME	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	A Wilson	6/30/2009
Barium	21	μg/L	2.5	5	A Wilson	6/30/2009
Beryllium	U	μg/L	0.11	1	A Wilson	6/30/2009
Cadmium	U	μg/L	0.41	1	A Wilson	6/30/2009
Chromium	U	μg/L	2.0	5	A Wilson	6/30/2009
Cobalt	0.17J	μg/L	0.04	1	A Wilson	6/30/2009
Lead	0.10J	μg/L	0.10	1	A Wilson	6/30/2009
Manganese	U	μg/L	0.42	1	A Wilson	6/30/2009
Selenium	1.3J	μg/L	1.3	5	A Wilson	6/30/2009
Thallium	0.22J	μg/L	0.03	1	A Wilson	6/30/2009
Vanadium	U	μg/L	3.4	5	A Wilson	7/1/2009

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	0.03J	μg/L	0.029	0.2	A Bass	6/30/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004718003

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name:

**Project Site No.:** 

**FINISH** 

**Station No.:** 

Date/Time Collected:

06/29/2009 10:40 **BRANDY LONG** 

Sampler's Name:

ROANE - 73

County: Sample Matrix:

EFO:

Water Knoxville

Sampling Agency:

TDEC-DWS

**Billing Code:** Send Report To: 327.39-12 **TDEC-DWS** 

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

06/29/2009

12:25

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	06/30/2009				A Wilson	6/30/2009	

TEST: ICP-MS	ME	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	A Wilson	6/30/2009
Barium	26	μg/L	2.5	5	A Wilson	6/30/2009
Beryllium	U	μg/L	0.11	1	A Wilson	6/30/2009
Cadmium	U	μg/L	0.41	1	A Wilson	6/30/2009
Chromium	U	μg/L	2.0	5	A Wilson	6/30/2009
Cobalt	0.084J	μ <b>g/L</b>	0.04	1	A Wilson	6/30/2009
Lead	U	μg/L	0.10	1	A Wilson	6/30/2009
Manganese	0.62J	μg/L	0.42	1	A Wilson	6/30/2009
Selenium	U	μg/L	1.3	5	A Wilson	6/30/2009
Thallium	0.13J	μg/L	0.03	1	A Wilson	6/30/2009
Vanadium	4.8J	μg/L	3.4	5	A Wilson	7/1/2009

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	6/30/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004718004

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name:

**Project Site No.:** 

**RAW** 

Station No.:

Date/Time Collected:

06/29/2009 10:45 BRANDY LONG

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12 TDEC-DWS

Send Report To: Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

06/29/2009 12:25

Received By:

P D Wilson

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

**CFS** 

TEST: Digestion Metals	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	06/30/2009				A Wilson	6/30/2009

TEST: ICP-MS	ME.	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	A Wilson	6/30/2009
Barium	22	μg/L	2.5	5	A Wilson	6/30/2009
Beryllium	U	μg/L	0.11	1	A Wilson	6/30/2009
Cadmium	U	μg/L	0.41	1	A Wilson	6/30/2009
Chromium	· U	μg/L	2.0	5	A Wilson	6/30/2009
Cobalt	0.14J	μg/L	0.04	1	A Wilson	6/30/2009
Lead	0.39J	μg/L	0.10	1 .	A Wilson	6/30/2009
Manganese	17	μg/L	0.42	1	A Wilson	6/30/2009
Selenium	U .	μg/L	1.3	5	A Wilson	6/30/2009
Thallium	0.091J	μg/L	0.03	1	A Wilson	6/30/2009
Vanadium	4.5J	μg/L	3.4	5	A Wilson	7/1/2009

TEST: Mercury	Mercury METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	6/30/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit